ORIGINAL ARTICLE

# The Relationship between Physical Activity Levels, Sleep Habits and Academic Performance in Physical Therapy Students of Riphah International University, Islamabad

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## ABSTRACT

**Objective:** The objective of this study was to determine the relationship of physical activity level, sleep habits and academic performance of Physical Therapy students.

**Study Design:** Descriptive Cross Sectional Survey.

**Place and Duration of Study:** The study was conducted from 1st January 2013 to 1st March 2013 in physical therapy institute of Rawalpindi/ Islamabad.

**Materials and Methods:** A sample of 190 from first year and final year were taken by using systemic probability sampling. A self administrated questionnaire, Epworth Sleepiness Scale (ESS) & Rapid Assessment of Physical Activity (RAPA) was used to collect data.

**Results:** The Epworth Sleepiness Scale score 25 % and 42% students were categorized in the level 6-8 and 9-11 respectively. The average score of students 33% and 21% were 71-75% and 66-70% marks respectively. 41% students having marks 71-75% lie in 9-11 Sleep score.

The total 33 out of 83(39%) students do light physical activities and get 71-75% marks in exam. Only 2 out of 9 (22%) students who do not do any activity were in 71-75% marks category.

**Conclusion:** It is concluded that students having good grades have less chances of dozing in day. The complete sleep has good effects on concentration of students towards study. It is also concluded that the students who indulge themselves in light activities get good grade in examination.


**Key Words:** *Epworth Sleepiness Scale, Grades, Physical Activity.*

## Introduction

There is very limited literature accessible regarding the activity level, sleep habits and academic performance. Understanding of the students always improves by physical activity.[1] The academic performance has some affiliation with physical activities of the learner.[2] There is positive association of fitness and educational performance in students.[3]Primary role of sleep is to provide relaxation and reinstate body energy level and tranquil the mind. Quality of sleep in young adults can be affected by irregular bedtime habits. Precise memory retention is very much linked with proper sleep habits.[4] Proper cognitive learning capability is adversely affected by bad sleep practice and poor sleep.[5] Literature supports the relationship between academic performance and sleep.[6]

Quality and quantity of sleep in medical students is decreased due to their busy and hectic schedule. Poor educational routine, road traffic mishap, cardiovascular episodes and psychosomatic suffering is reported to be linked with reduced sleep quality. It has been reported that female students have considerably more number of naps as compared to male's students.[7] Studies have shown that behavioral /problems like tension, irritability, confusion, depression and generally low life satisfaction results from deprivation of sleep in students.[8] Student attitudes to examine each other have been explored by many other studies. Unexpectedly, consequences of changes have been downplayed by the students. Also unpredictably, some students preferring friends for examination and others were preferring strangers.[9]Another study compares the Hong Kong adolescents with other countries about the prevalence of sleep withdrawal and sleep commotion. Every training institute should consider intervention programs for sleep problems.[10] It has been found that students who have academic difficulties do not realize that poor sleep habits and sedentary life style may have effect on their poor academic progress. Poor sleep quality was associated with behavioral changes in students. Poor quality sleep was linked with poor academic progress

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and is related to health, well being and emotional feelings in medical students. This study was carried out in the first year and final year Physical Therapy students of physical therapy institute (Margalla, ISRA and Riphah) of Rawalpindi and Islamabad with the objective to determine their sleep habits and physical activity level and its effect on academic performance.

**Table I: Marks in Percentage * Rapid Assessment of Physical Activity Cross Tabulation**

| | | Rapid Assessment of Physical Activity | | | | | |
|---|---|---|---|---|---|---|---|
| | | I rarely or never do any physical activity | I do some light or moderate physical activities, but not every week | I do some light physical activity every week | I do moderate physical activities every week, but less than 30 minutes a day or 3 days a week | I do vigorous physical activities every week, but less than 20 minutes aday or 3 days a week | Total |
| Marks in Percentage | 60 % and below | 3 | 14 | 9 | 1 | 0 | 27 |
| | 61% -65% | 0 | 13 | 13 | 2 | 0 | 28 |
| | 66%-70% | 4 | 12 | 19 | 6 | 0 | 41 |
| | 71%-75% | 2 | 8 | 33 | 19 | 1 | 63 |
| | 76%-80% | 0 | 2 | 7 | 12 | 4 | 25 |
| | 81% and above | 0 | 0 | 2 | 1 | 3 | 6 |
| Total | | 9 | 49 | 83 | 41 | 8 | 190 |

**Table II: Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| Epworth Sleepiness Scale | Equal variances assumed | 9.647 | .002 | 1.045 | 188 | .297 | .13886 | .13283 | -.12318 | .40090 |
| | Equal variances not assumed | | | .981 | 124.046 | .328 | .13886 | .14155 | -.14130 | .41903 |
| Rapid Assessment of Physical Activity | Equal variances assumed | .811 | .369 | .505 | 188 | .614 | .06873 | .13607 | -.19969 | .33715 |
| | Equal variances not assumed | | | .503 | 153.688 | .616 | .06873 | .13658 | -.20109 | .33856 |

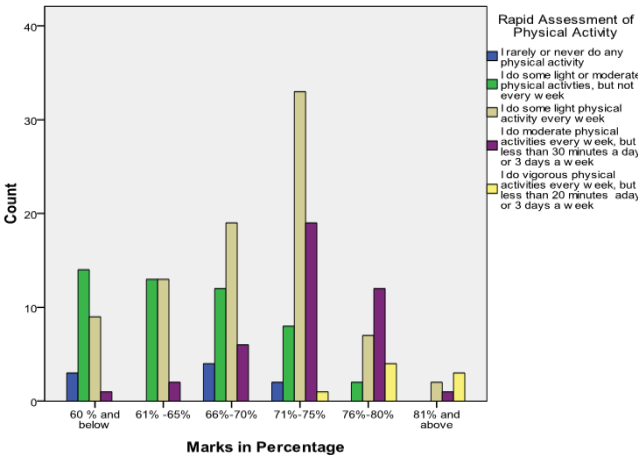


**Fig 1: The students who have slight chances of dozing get good grades**

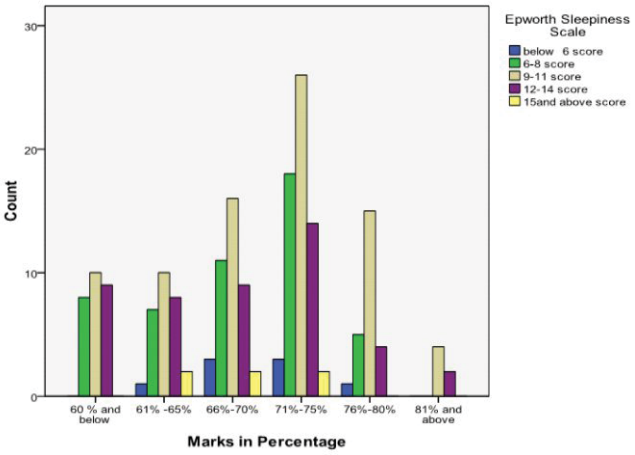


**Fig 2: The students who indulge themselves in light activities to moderate physical activities get good grades in examination**

## Materials and Methods

A descriptive cross sectional study was conducted and a sample of 190 from first year, and final year was taken by using systemic probability sampling. A self administrated questionnaire, Epworth Sleepiness Scale (ESS) & Rapid Assessment of Physical Activity (RAPA) was used to collect data. The Epworth Sleepiness Scale score was 0 for would never doze, 1 for slight chance of dozing, 2 moderate chances of dozing, and 3 for high chance of dozing. The Rapid Assessment of Physical Activity (RAPA) from 1 to 7 means no activity to vigorous activity. The academic performance (CGPA) was drawn from record of students. The 4/4 will be Excellent, 4-3/ as Good and below 3 Satisfactory. The data was analyzed through SPSS 20 and a descriptive analysis was documented.

The total 190 students were recruited and 116 from first year and 74 from final year.

The Epworth Sleepiness Scale score 25 % and 42% students were categorized in the level 6-8 and 9-11 respectively. The average score of students 33% and 21% were 71-75% and 66-70% marks respectively. 41% students having marks 71-75% lie in 9-11 Sleep score. The students who have slight chances of dozing get good grade.71-75% lie in 9-11 Sleep score. The students who have slight chances of dozing get good grade.

The total 33 out of 83(39%) students do light physical activities and get 71-75% marks in exam. Only 2 out of 9 (22%) students who do not have any physical activity were in 71-75% marks category. The students who indulge themselves in light activities get good grade in examination.

The p value (0.297) for Epworth Sleepiness Scale for first and final year means that there is no difference in the chance of dosing for first and final year students.

The p value (0.614) for Rapid Assessment of Physical Activity (RAPA) for first and final year means that there is no significant difference of level of physical activity between first and final year students.

## Discussion

The results of this study are evident from many other studies in literature which supports the relationship academic performance, physical activity and sleep habits. The results of one study is in difference with other studies that concluded sleep duration is greater in Europe as compared to Asia, girls wake up notably earlier than boys, and that the gender and grade level is associated with incidence of sleep latency.[11]

Reasonable to energetic physical activity programs of 30 to 45 minutes duration under supervision are used by many interventional studies. The researchers alleged that greater amount of physical activity would be necessary to achieve beneficial effects on health and behavior. Developmentally appropriate and enjoyable 60 minutes or more of moderate to vigorous physical activity is necessary for youth.[12]

According to some studies physical and mental characteristics of older adults always have beneficial effects by famous methods of exercise like Pilates and Taiji quan, but more studies are in samples of

older participants. It has been also reported that college-age individuals are also get benefited by these mode of exercises to improve their mental parameters.[13]

Many of the mechanisms of greater expert performance serve the dual rationale of mediating experts to informative feedback during practice activities in response to current performance and of allowing continued improvement of this performance.[14] A combination of research findings in physical fitness and exercise is presented to general public with insight to provide and establish individualized exercise program. These findings also indicate the demand for exercise and fitness and how it is an essential part of preventive medicine programs.[15] Another study highlights the association between mental health and physical activity and its relationship to depression and other mood state. Results of the growing literature continue to support the effects of physical activity on physical and mental health outcomes. Usually, better and desirable health outcomes are showed by the participants involved in regular physical activity. Similarly, according to the results of the RCTs regarding physical activity interventions participants' show, good quality of life, better health outcomes, better functional aptitude and better temper state.[16]

Increasing frequency of obesity among adolescents and adults in the United States can be reversed to its maximum following balanced diet and regular physical activity. It is recommended by many studies that there should be implementation program related to healthy weight management and to increase students awareness encompassing importance of healthy diet combined with physical activity.[17]

Serum lipid levels, dietary intake and physical activity of college students living on and off campus were compared. Reported percentage of energy from protein was considerably higher in subjects living off campus. It is recommended that nutrition and physical education is important for all students because their lifestyle may prompt them to develop different chronic diseases.[18]

There are many physiological benefits of regular physical exercise and has been characterized as a positive health factor. Psychological remuneration may also capitulated. The rationale of the current study was to investigate the relationship between number of measures of psychological comfort and physical exercise frequency in a large population-based sample. The results point out a reliable correlation between enhanced psychological well-being, as measured using a regular physical exercise parameters and psychological inventories.[19]

In another article, researchers review the demonstration and causes of student distress, its expert penalty, and potential unfavorable personal and proposed institutional approaches to reduce student distress.[20] So these many studies and the results of present study clearly indicate the importance of physical activity and proper sleep habits and its effects on student academic performance.

## Conclusion

It is concluded that students having good grades have less chances of dozing in day. The complete sleep has good effects on concentration of students towards study. Physical activity always has profound effect on overall physical fitness, mood state and attention level. So it is concluded from this study that the students having good grades have good sleep habits and they are involved in various types of light to moderate physical activities.

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